

SUBSTITUTE SPECIFICATION

SYSTEM FOR OPERATING DC MOTORS AND POWER CONVERTERS

Field of the Invention

[0001] The present invention relates generally to motors and power supplies and, in particular, systems for operating a direct-current (DC) motor or power converters.

Background of the Invention

[0002] In the treatment of sleep apnoea and other respiratory disorders, a positive air pressure is used applied to the patient airway. The equipment used is known as an airflow generator.

[0003] A method used to generate air pressure is shown in Fig. 1. A brushless DC motor (16) is used to drive a turbine or blower (15). The turbine (15) generates the air flow for the patient. The brushless DC motor controller (14), in conjunction with the control electronics of the flow generator (13), receive power from a power supply (12) that is connected to the AC main through a filter (11). Sometimes the filter is built into the power supply itself. Control signals are sent from the control electronics (13) to the brushless DC motor controller (14), so the speed of the motor (16) can be controlled.

[0004] The pressure and the amount of air delivered depend on the speed of the turbine. In some types of equipment, pressure and flow sensors are used to monitor these variables and change the speed of the motor to achieve the desired effect. Also, in some cases, the speed of the motor is changed, alternating between a high and a low value, either in response to the patient respiration or as part of an automatic cycle. Equipment performing in this way is known as bi-level devices.

[0005] In Fig. 1, a single power supply (12) provides power to both, the motor driving circuits (14) and the control electronics (13).